SEKOLAH BUKIT SION – HIGH SCHOOL
AY 2020-2021

MATHEMATICS (EXTENDED) 0580
CHAPTER 2 TEST: QUADRATICS

NAME: _____ **CLASS:** _____ **DATE:** _____

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INSTRUCTIONS:

1. Use any of the 2 methods to answer the questions in an orderly and neat manner.
   - using a file paper
   - printed test paper

2. Use **black** or **blue** pen.
   Do not use highlighter or **correction tape**.

3. Once you are done, insert the **pdf printout** on the assigned page for this Chapter Test.
   ***Do not** "Add work"* **as it becomes a different file.**
   Your work should be found inside/within the Chapter Test page that was sent.

4. Keep a copy of your work in your personal channel and use the pattern below as filename.

   YourNameClass_C2QuadraticsTest

   Example: Emman10.4_ C2QuadraticsTest

5. Submit on-time. You only are given an extra 10 minutes after the specified time duration to scan and attach your files.

   After the closing time has elapsed, your work will NO LONGER be accepted.

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QUESTION 01.
[10]

    (a) Jose thinks of two numbers.
        The difference of the two numbers is 12 and their product is 405.
        Form simultaneous equations and solve them to find the numbers.

    (b) Solve the simultaneous equations below.
$$2x + y = 3 \qquad\qquad x^2 + y^2 = 3 - xy$$

    (c) The line $y = x + 5$ cuts $y = x^2 - 3x$ at two points A and B.
        Find the coordinates of A and B and the exact value of their distance.

QUESTION 02   **[10]**

    (a) Factorise $x^2 - x - 6$.
    (b) Sketch $f(x) = x^2 - x - 6$, indicating clearly the x and y intercepts.
    (c) Write down the coordinates of the vertex of f **using symmetry**.
    (d) Solve for x if $x^2 - x - 6 < 0$.

QUESTION 03   **[5]**

    (a) Show that $2x(x - 3) = 5 - 3x$ simplifies to $2x^2 - 3x - 5 = 0$.
    (b) Hence, solve $2x^2 - 3x - 5 \geq 0$.

QUESTION 04   **[10]**

    (a) Express $f(x) = -2x^2 + 8x + 10$ in the form of $f(x) = a - b(x - c)^2$.
    (b) Hence, write down the coordinates of the vertex of f.
    (c) Sketch the graph of f for $0 \leq x \leq 5$.
    (d) Find the range of f.

QUESTION 05   **[5]**
If you choose graphical method, use a graphing paper for accuracy.

$$y = x + 2$$
$$y = \left| x^2 - 4x - 5 \right|$$